

XXXV.—*Characters of new Land-Shells from the Andaman Islands, Burmah, and Ceylon, and of the Animal of Sophina.*  
By W. H. BENSON, Esq.

1. *Helix hemiopta*, B., n. sp.

*H. testa* anguste umbilicata, depresso-conoidea, vix striatula, læviuscula, minutissime granulata, opaca, albida; anfractu ultimo superne castaneo, versus peripheriam saturatiore; spira convexo-conoidea, apice obtuso, sutura vix impressa; anfractibus  $4\frac{1}{2}$ , convexiusculis, sensim accrescentibus, ultimo superne prope peripheriam obtuse angulatam concaviusculo, subtus convexiusculo; apertura obliqua, subquadrato-lunata, intus concolore, peristomate expansiusculo, superne antice arcuato, subtus breviter reflexo, marginibus remotis, columellari superne valde dilatato, umbilicum subtegente.

Diam. major 16, minor  $13\frac{1}{2}$ , axis 10 mill.

Habitat ad Portum Blair Andamanicum.

Two dead specimens of this shell, only one of which has the aperture complete, were collected by Major J. C. Haughton.

A nearly allied shell, with the surface in good condition, obliquely substriated, shining, and sprinkled with minute indentations, may possibly be a variety; but the aperture is in a state too imperfect to allow a satisfactory decision. It is milk-white, with a single dark band above the periphery and running along the edge of the upper whorls, which are slightly more convex, and divided by a more depressed suture. A single specimen from Port Blair was received from Major Haughton.

2. *Helix Aulopis*, B., n. sp.

*H. testa* perforata, depresso-conoidea, oblique minute striatula, striis confertissimis spiralibus decussata, pallide cornea, nitidula, translucente, versus apicem rubente; spira conoidea, apice acutiusculo, sutura leviter impressa; anfractibus 5, superne subplanulatis, vix convexiusculis, ultimo subtus convexiusculo, ad peripheriam carinato; apertura obliqua, quadrato-lunata, peristomate recto, tenui, acuto, marginibus subremotis, callo tenui junctis, columellari superne breviter dilatato.

Diam. major 12, minor 10, axis 6 mill.

Habitat ad Portum Blair.

A single specimen of this shell, in good condition, was received from Major Haughton. It has some affinity to the Javanese *H. helicinoides*, Mousson.

A perfect example (from the same source) of *Helix Helferi*, m., described in the 'Annals' for September 1860, has a dark corneous epidermis, dull and lustreless, and the scattered hairs are like short dark-coloured prickles. The peristome is liliaceous white and polished. This and other specimens of the shell ob-

tained from Port Blair fully bear out the distinctive characters from *H. asperella*, Pfr., founded on the examination of a single dead specimen.

3. *Helix Scenoma*, B., n. sp.

*H. testa* anguste infundibuliformi-umbilicata, subgloboso-conoidea, oblique irregulariter striata, striis minutissimis spiralibus decussata, sub epidermide cornea albida, carina interdum fascia rufocastanea ornata; spira conoidea, apice obtusiusculo, sutura impressa; anfractibus 6, convexiusculis, ultimo antice vix descendente, ad peripheriam obtuse subcompresso-carinato, subtus convexo, circa umbilicum compresso; apertura obliqua, subquadrato-lunata, peristomate expansiusculo, margine columellari reflexiusculo.

Diam. major 16, minor 14, axis 11 mill.

Var. *depressa*: diam. major 17, minor 15, axis 10½ mill.

Habitat prope Moulmein.

A single specimen, slightly worn, of the type was received with *Helix Gordonix*. Specimens of the depressed form were collected by Col. Robert Gordon.

4. *Helix brachyplecta*, B., n. sp.

*H. testa* dextrorsa, late umbilicata, discoidea, obesuscula, minute arcuato-striata, striis minutissimis spiralibus obsolete decussata, opaca, non nitida, rubescenti-castanea, superne saturatiore, circum apicem succinea; spira planata, apice vix prominente, sutura impressa; anfractibus 6, lente accrescentibus, convexiusculis, ultimo rotundato, superne prope suturam subangulato, antice descendente; apertura obliqua, rotundato-lunari, subauriculata, intus lilacina; peristomate expansiusculo, reflexiusculo, rufo-castaneo, marginibus remote convergentibus, plica arcuata prominente parietali junctis, lamina longiuscula subascendente e medio plicæ intus recedente, plicis 2 parietalibus remotis verticalibus, quarum externa arcuata internaque curvata, laminis 6 remotioribus palatalibus, quarum superiore et basali tenuibus et 4 medianis incrassatis, foveatis; umbilico lato, concavo.

Diam. major 22, minor 18, axis 8 mill.

Habitat ad ripas fluvii Attaran prope Moulmein. Teste Col. R. Gordon.

An obese dextrorse *Plectopylis*, bearing, in some degree, the same relation in form to *H. refuga*, Gould, that *H. Charpentieri*, Pfr., does to *H. Rivolii*, Fér.; but the interior parietal and palatal laminae and plicæ differ widely from those of the shell from Phye Than, referred to, in the 'Annals' for April 1860, as a dextrorse variety of *H. refuga*, and from all the other species which have come under my inspection, including two new forms discovered by Mr. W. T. Blanford in Ava and Pegu.

5. *Helix Aspides*, B., n. sp.

*H. testa* obtecte perforata, orbiculato-depressa, vix striatula, lævigata, polita, cornea, subdiaphana; spira convexiuscula, subplanata, apice elevatiuscula, sutura leviter impressa, submarginata; anfractibus 6, vix convexiusculis, lente accrescentibus, ultimo demum latiore; apertura obliqua, late lunata, peristomate breviter patente, intus incrassato albido, subtus latiore, margine superiore prominente valde arcuato, basali arcuatim bisinuato, columellari brevissimo, superne reflexiusculo, pariete tenuissime calloso.

Diam. major 11, minor 9, axis 5 mill.

Habitat — ?

This shell may at once be distinguished from the Burmese *H. Petasus*, B., and the allied forms, by the white, thickened, and expanded inner edge of the peristome, the sinuate basal margin, and the somewhat wide superior margin of the aperture. A single specimen was sent by Mr. W. Theobald for examination, without any indication of the locality, which may possibly be Burmese.

6. *Helix fritillata*, B., n. sp.

*H. testa* perspective umbilicata, depresso-subconoidea, arcuatim costulato-striata, subtus læviore polita, superne striis confertis spiralis impressis decussata, interstitiis conspicue quadrato-granulatis, pallide cornea; spira convexa, subconoidea, apice obtuso, lævigato, sutura profunda; anfractibus 6, angustis, lente accrescentibus, convexis, ultimo demum latiusculo, extus depresso, antice vix descendente, subtus valde convexo, circa umbilicum excavato; apertura obliqua, oblique semiovato-lunata, peristomate superne tenui, valde arcuato, subtus breviter expansiusculo, arcuato, extus marginato, marginibus remotioribus.

Diam. major 13, minor 12, axis 7 mill.

Habitat in regione Peguensi.

A single specimen, belonging to the Museum of the Asiatic Society of Calcutta, was received for examination.

In the 'Annals of Natural History' for September 1860, *Helix consepta*, B., was founded on a single specimen found at Damatha, near Moulmein, by Major Haughton. I have since found a specimen of the same shell in Col. Robert Gordon's collection, made at Moulmein; and a dwarf variety from Pegu belongs to the Museum of the Asiatic Society of Calcutta.

7. *Helix phyllophila*, B., n. sp.

*H. testa* vix perforata, trochiformi, tenui, superne sericea, oblique striatula, subtus subnitente, utrinque (sub lente) striis confertissimis undulatis minutissime ornata, translucente, pallide cornea; spira conica, apice acutiusculo, sutura impressiuscula; anfractibus  $6\frac{1}{2}$ , convexiusculis, ultimo carinato; apertura obliqua, subquadrato-

lunari, peristomate simplici, recto, acuto, margine columellari verticali, reflexo, superne latiore, umbilicum subtegente.

Diam. major 5, minor  $4\frac{1}{2}$ , axis 5 mill.

Habitat ad Badulla, Ceylon. Teste F. Layard.

The fully grown shell was taken at Badulla, on Love-apple leaves; and a depressed form, which appears to me to be the young, on those of Coffee-plants. A small specimen of a variety occurred at Fort M'Donald. The species comes very near *H. Infula*, B., which inhabits the leaves of shrubs in Bengal and Bahar; but the subremote spiral lines, elevated on the upper and sharply impressed on the lower side in that species, are replaced on both sides, in the shell now described, by minute and closely-set undulate striae.

*Helix Barrakporensis*, Pfr., a shell which occurs in the Lower Himalaya, from Dehra Dhoon to Sikkim, and which the Messrs. Blanford, in a contribution to the Journal of the Asiatic Society of Calcutta, No. 283, for 1861, notice as found by Mr. R. Bruce Foote in the Kalryen Hills, near Salem, in Southern India, was obtained by Mr. F. Layard at Kandookerre, in Lower Ourah, Ceylon—a distribution equal in extent to that of *Helix Huttoni*, Pfr.

Mr. W. T. Blanford, in page 86 of the 'Annals' for February 1863, under the heading "Ganesella," includes *Helix Capitium*, Bens., from the Rajmahal Hills, and *H. variola*, Bens., from Thayet Mio and Pegu, adding that the distinctness of the two species appears very dubious. On reference to the colouring of the two forms it is evident that "*variola*" is a misprint for "*Hariola*." A comparison of the wide and depressed form of *H. Hariola*, as figured in Pfeiffer's 'Novitates Conchologicae,' pl. 36. f. 21, 22, with a perfect example of the high conical form of *H. Capitium*, or with the well-drawn figures in Küster's edition of Chemnitz, pl. 125. f. 3, 4, will at once satisfy the inquirer that the two species are perfectly distinct. I feel assured that Mr. W. T. Blanford has not examined a fully-grown example of the Sicrigully shell discovered by Capt. Boys in the low ground intervening between that detached hill and the main range of the Rajmahal Hills.

#### 8. *Clausilia Bulbus*, n. sp.

*C. testa sinistrorsa, vix rimata, oblongo-obovata, pupiformi, regulariter oblique striata, rubenti-ferruginea; spira obovata, superne ventricosa, versus apicem obtusum concamerata, sutura impressa; anfractibus  $5\frac{1}{2}$ , convexiusculis, primis rapide accrescentibus, antepenultimo tumido, penultimo decrescente, ultimo angustiore, pone aperturam impresso, subangulato, infra rotundato; apertura vix obliqua, oblique auriformi, peristomate continuo, margine late*

expanso, reflexiusculo, albedo-rubente, lamella superiore acuta, prominente, longe intus intrante, spirali, infera forti, oblique spiraliter ascendente, subcolumellari immersa; plicis palatalibus 7, superiore valde elongata, late erecta, intus cum lamella superiore rimam angustam efformante, 6 inferioribus brevibus, subparallelibus, lunella nulla.

Diam. anfract. antepenultimi 9, ultimi supra aperturam 5, axis 23 mill.; apert. (oblique) longa 8, lata 7 mill.

Habitat ad ripas fluvii Attaran, non procul ab urbe Moulmein.

This most singular form in the genus was found by Col. Robert Gordon in the same locality as *Opisthoporus Gordoni*, *Helix brachyplecta*, and *H. Gordonix*—shells which escaped the observation of former collectors in that rich district. The bulbous pupiform figure of the shell at once distinguishes it from *Cl. Philippiana*, Pfr., an inhabitant of the Farm Caves, as well as from any other known species. The upper lamella runs spirally up the aperture, forming a narrow slit between it and the upper knife-like plica.

#### 9. *Bulimus Stalix*, B., n. sp.

*B.* testa rimato-perforata, oblongo-conica, solidiuscula, oblique irregulariter plicatulato-striata, epidermide spiraliter confertissime striatula, castanea, strigis obliquis, sutura, basi apiceque albidis; spira elongato-conica, apice obtusiusculo, sutura impressiuscula, nonnunquam marginata; anfractibus 7, convexiusculis, ultimo ad basin compressiusculo, antice vix ascendente; apertura subobliqua, anguste pyriformi, intus castanea, peristomate sensim dilatato, vix reflexiusculo, albedo, marginibus remotis, non conniventibus, columellari lato, callo obliquo superne castaneo junctis.

Long. 20, diam. 7 mill.

Habitat ad Boralande.

Found by Mr. F. Layard in the district of Upper Ourah, in Ceylon. Its nearest ally is *Bulimus proletarius*, Pfr., which was taken by Mr. Layard at Bootelle and Kaluganga.

#### 10. *Opisthoporus Gordoni*, B., n. sp.

*O.* testa late et concave umbilicata, depressa, discoidea, confertim striata, sub lente striis minutis spiralibus, nonnullis elevatiusculis, decussata, albida, strigis fulguratis castaneis fasciaque fusca dentata ad peripheriam ornata; spira planata, apice non elevato obtuso, sutura profunda, demum canaliculata; anfractibus 5, gradatim accrescentibus, convexis, ultimo rotundato, antice descendente, pone alam breviter soluto, 4 millim. pone aperturam spiraculo suturali brevi retrorsum spectante, nonnunquam subobsoleto, munito; apertura valde obliqua, circulari; peristomate duplici, interno prope anfractum penultimum breviter inciso, exteriore superne et ad dextram angulatim expanso, reflexiusculo, ala

intus concava insuper anfractum penultimum antrorsum ascendente munito.

Diam. major 22-23, minor 17-19, axis 5-6 mill.

Habitat non procul ab urbe Moulmein. Invenit Col. R. Gordon.

The last whorl is slightly solute behind the wing, which runs forward up the penultimate whorl, to which it adheres. This is the first species of the genus which has been discovered in Burmah. Two specimens were found on the banks of the Attaran River, near limestone rocks, fifteen miles from its mouth. In one shell the sutural spiracle is worn down to the surface. The operculum was not obtained.

*Animal of Sophina.*

I am indebted to Col. R. Gordon for observations on the animal of *Sophina*. It proves to be acrommatous, and allied to *Helix*, from which, with reference to the anomalous slit in the columella, it may be separated on grounds as decided as those which suffice for the distinction of the genera *Achatina* and *Streptaxis*.

*Sophina*.—Animal with four tentacula, two long and two short; the eyes situated on the summits of the larger pair. Colour greyish-blue, with a yellow tint, and a dark spot between the greyish-blue tentacula, the dark colour extending along the neck.

Cheltenham, April 6, 1863.

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XXXVI.—On Natural and Artificial Section in some *Chætopod Annelids*. By W. C. MINOR\*.

THE circumstances of spontaneous fission have been observed in so few species of Annelids at present as to make every additional observation of value, even though only confirmatory of what is already known upon that subject. This consideration, and the fact that all views of its nature in the Oligochæta seem to be based upon the observation of one species (*Stylaria proboscidea*), have tempted me to publish the following brief investigations, however they may want any very special novelty to give them value.

It is now nearly one hundred years since the distinguished Danish naturalist, Otto Fr. Müller, studied the phenomena of spontaneous fission in the freshwater Naidst; and his able little

\* From Silliman's American Journal for January 1863.

† Trembley had discovered it long before this, as he observes in his 'Mémoires p. s. à l'hist. d'un genre de Polypes d'eau douce,' 1744; and Roesel, in his 'Insektenbelustigungen,' describes the united parent and bud; but the former did no more than observe the fact, and the latter wholly misunderstood what he saw.